

10/775,887
Art Unit 2858
13-DV-132638A

1. (Original) A method of sensing spark in an igniter in a gas turbine engine, comprising:

- a) maintaining a sensor adjacent a surface of the igniter;
- b) using the sensor to detect spark; and
- c) issuing a signal when spark is detected.

2. (Original) Method according to claim 1, wherein said surface reaches a temperature of 175 F or greater during normal operation of the engine.

3. (Original) Method according to claim 2, wherein the sensor is in contact with said surface.

4. (Original) Method according to claim 1, wherein said surface is electrically conductive and connected to a system ground.

5. (Original) Method according to claim 1, wherein no electrical current passing through the igniter enters the sensor.

6. (Original) Method according to claim 1, wherein the gas turbine engine powers an aircraft, and the signal is issued to a pilot station in the aircraft.

7. (Original) Method according to claim 1, wherein

- 1) a cable runs from an exciter to the igniter,
- 2) the cable delivers electrical power to the igniter,
- 3) an external conductive shield surrounds the cable and is connected to the engine,
- 4) the cable connects to the igniter at a contact point, and a second conductive shield extends from the contact point along the igniter, and
- 5) the sensor is wholly external to both conductive shields.

8. (Original) Method according to claim 1, wherein the sensor comprises an inductive pick-up.

9. (Original) Method according to claim 1, wherein the sensor comprises a coil, and part of the igniter forms a core of the coil.

10. (Original) Method according to claim 7, wherein the second conductive shield comprises a housing of the igniter.

11. - 14. (Withdrawn)

11. (Withdrawn) A method of detecting spark,

comprising:

- a) using a power source to apply a high voltage to a supply conductor connected to a spark gap, to cause dielectric breakdown in the spark gap;
- b) when dielectric breakdown occurs, carrying some return current from the spark gap along a path to the power source;
- c) maintaining a conductive shield around the supply conductor; and
- d) detecting current in the conductive shield, and issuing a signal indicating presence of spark in response.

1 12. (Withdrawn) Method according to claim 12, wherein the
2 path leads to a system ground.

1 13. (Withdrawn) Method according to claim 13, wherein the
2 conductive shield is connected to a system ground.

1 14. (Withdrawn) Method according to claim 12, and further
2 comprising maintaining the spark gap in a gas turbine engine.

15. (Original) Method according to claim 1, wherein the gas turbine produces power, and the sensor output is produced as a

10/775,887
Art Unit 2858
13-DV-132638A

result of sparking events.

16. (New) Method according to claim 7, wherein the external conductive shield surrounds the cable along full length of the cable.

17. (New) Method according to claim 1, wherein

- 1) a cable, comprising a conductive core and a conductive shield, delivers current to the igniter via the conductive core,
- 2) part, but not all, of the current returns along the conductive shield, making the net current in the cable non-zero, and
- 3) the sensor detects the non-zero net current.

18. (New) Method according to claim 17, wherein the sensor comprises an inductor adjacent the surface, and a capacitor located away from the surface.

19. (New) Method according to claim 7, wherein

- i) the cable delivers incoming current to the igniter,
- ii) the external conductive shield and the

second conductive shield carry return current to ground,

iii) the return current is smaller than the incoming current, and

iv) the sensor detects the difference between the return current and the incoming current.

20. (New) Method according to claim 19, wherein the sensor produces no signal if the return current equals the incoming current.

21. (New) A method of sensing spark in an igniter in a gas turbine engine, comprising:

a) delivering current to the igniter along a shielded cable which comprises

i) a conductive core, and

ii) conductive shielding surrounding the core and which is grounded;

b) receiving partial, but not all, return current from the igniter on the conductive shielding, wherein net current in the shielded cable is non-zero; and

c) maintaining a sensor adjacent a surface of the igniter, which detects the non-zero net current.

10/775,887
Art Unit 2858
13-DV-132638A

22. (New) Method according to claim 21, wherein the sensor comprises an inductor adjacent the surface, and a capacitor located away from the surface.